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09/964,533	09/28/2001	Sung Bae Jun	LGE-0015	2659

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ART UNIT	PAPER NUMBER
2621	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

	Application No.	Applicant(s)
Office Action Summary	09/964,533	JUN ET AL.
	Examiner	Art Unit	
	Jamie Vent	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 November 2006*.

2a)☒ This action is **FINAL.** 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 10-31* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot

in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-8, 10,12-25, 28-31 are rejected under 35 U.S.C. 103(a) as being

unpatentable by Wu et al (US 5,615,018) in view of Lane et al (US 5,377,051).

[claim 1]

In regard to Claim 1 Wu et al discloses a method of controlling an intelligent fast-forward

video system comprising the steps of:

- calculating complexity of a video story development based on motion information

  by sequentially indexing an entire video (Column 4 Lines 14-24);

- determining a play speed using the calculated motion-based complexity (Column

  5 Lines 1-25);

- variably controlling the play speed of the video based on the determined play

  speed (Column 6 Lines 1-48); however, fails to disclose that wherein the

  complexity is defined based on additional information on a length of shot

segment, wherein the complexity is defined as simple in a case that a length of a shot segment is long and the complexity is defined as more complicated in a case that shots having short shot segments consecutively appear.

Lane et al teaches a digital video recorder that has trick play image enhancement as seen in Figure 12d. The trick play modes also provides each coefficient to be divided by a weighted factor that is determined on scene complexity, perceptual characteristics, and additional scaling that takes the divided weighted coefficients by the quantization factor. The ability to provide the complexity of the additional information on the length of a shot allows for more accurate motion compensation in video recording system. Therefore, it would be obvious to one of ordinary skill in the art to use the intelligent fast forward video system, as disclosed by Wu et al, and further incorporate a system that allows for the complexity to be defined based on the length of a shot segment, as disclosed by Lane et al.

[claim 2]

In regard to Claim 2, Wu et al discloses a method of claim 1, wherein the motion information is based on an amount of a numerically expressed motion in one frame of the video (Column 5 Lines 14-19).

[claim 3]

In regard to Claim 3, Wu et al discloses a method of claim 2, wherein the numerically expressed motion in one frame is defined by motion vectors and information on intra-coded macro-blocks and not-coded macro-blocks (Column 5 Lines 19-25).

[claim 4]

In regard to Claim 4, Wu et al discloses a method of claim 3, wherein the macro-blocks are considered as motion vectors having a predetermined size and the predetermined size of the motion vector is determined as one of a maximum motion vector size, an arbitrary value in accordance with usage, and `0` (Column 5 Lines 14-19 describes the macro-blocks that are considered as motion vectors).

[claim 5]

In regard to Claim 5, Wu et al discloses a method of claim 4, wherein the amount of the numerically expressed motion in one frame is defined by considering the intra-coded and not-coded macro-blocks as motion vectors having designated sizes and then by taking an average value of all vector sizes of all the remaining macro-blocks (Column 5 Lines 19-25 describes the intra-coded and not-coded macro blocks).

[claim 6]

In regard to Claim 6, Wu et al discloses a method of claim 1, wherein the motion information is defined by an average value of motion information in the respective frames of an interval in specific consecutive intervals of the video (Column 4 Lines 49+ describes the averaging value of motion vectors).

[claim 7]

In regard to Claim 7, Wu et al discloses a method of claim 6, wherein the motion information is camera motion information and wherein an adjustment of the motion information of a corresponding interval is carried out to be inverse-proportional to a size of the camera motion in accordance with importance of the camera motion (Column 4 lines 4-12 and lines 55+).

[claim 8]

In regard to Claim 8, Wu et al discloses a method of claim 7, wherein the motion

information of an interval having an important specific camera motion is adjusted to be

more complicated or the motion information of an interval having an unimportant

specific camera motion is adjusted to be simpler (Column 4 Lines 48+ describes the

camera motion is adjusted for the motion information).

[claim 10]

In regard to Claim 10, Wu et al discloses a method of claim 1, wherein the complexity

based on the motion information is adjusted by using additional information for

improving performance such that face detection information of characters, audio

information and image text information in case the complexity of the video story

development is reflected on the motion information (Column 6 Lines 40+ describes the

complexity based on the motion information and further described in Column 7 Lines

64+ through Column 8 Lines 1-15).

[claim 12]

In regard to Claim 12, Wu et al discloses a method of claim 1, wherein the play speed

based on the content complexity is adjusted to be inverse-proportional to complexity of

video information, to be an absolute value, or to be designated as a value relative to an

average and a standard deviation of entire video complexity (Column 5 Lines 14-20

describes the content complexity adjusted to be inverse-proportional to the complexity

of the video).

[claim 13]

In regard to Claim 13, Wu et al discloses a method of claim 1, wherein frames to be played are selected based on the content complexity, and wherein (a) the frames are selected such that total play time T' of the frames classified to realize n times play speed is chosen to be equal to T/n in case a play time of normal speed of a video is T (Column 6 Lines 30-42 describes the frames are selected during the times of total play time) (b) the frames are selected to be equally distributed in display time by considering decoding time of the respective picture types (Column 5 Lines 34+) (c) picture types having short decoding, time are selected preferentially to reduce the black-out caused by long decoding time of the pictures (Column 6 Lines 50+) or (d) at least one frame of the shot is designated and played to prevent a short shot from being omitted entirely (Column 6 Lines 50+ describes the prevention of a short shot being omitted).

[claim 14]

In regard to Claim 14, Wu et al discloses a method of claim 1, wherein the index information is defined by a specific interval of the video and image complexity of the interval, and wherein the play is carried out by (a) a step of determining a play speed of a corresponding interval based on the image complexity information and then (Column 6 Lines 30-49 describes the speed detection) (b) a step of selecting a frame to be played based on the determined play speed in the corresponding interval (Column 6 Lines 50+ describes the selection of a frame based on play speed).

[claim 15]

In regard to Claim 15, Wu et al discloses a method of claim 1, wherein the index information is defined by a specific interval of the video and a play speed of the specific

interval, wherein the specific interval is played at a designated speed thereto (Column 6

Lines 30+ describes the playing of video at a specific speed).

[claim 16]

In regard to Claim 16, Wu et al discloses a method of claim 1, wherein the index

information is defined by a sequence of frames to be played and wherein the frame

sequence to be played is sequentially played (Column 7 Lines 34+ describes the

outputting of frame sequence to be played sequentially).

[claim 17]

In regard to Claim 17, Wu et al discloses a method of claim 1, the method further

comprising a step of changing the play speed so as to support a user to view more

slowly or faster than the play speed provided by the system by the user's adjustment of

a content complexity value attained by the indexing information, wherein all values

through entire intervals of the corresponding video are increased/decreased collectively

or at a constant ratio by the user's adjustment or wherein specific image complexity

values are increased/decreased selectively by the user's adjustment (Column 7 Lines

64+ through Column 8 Lines 1-22).

[claim 18]

In regard to Claim 18, Wu et al discloses a method of claim 17, wherein the adjusted

content complexity value is stored with information on the corresponding interval so as

to be used as a new image complexity value when the corresponding interval starts to

be played (Column 7 Lines 9+ describes the adjustment of content complexity).

[claim 19]

In regard to Claim 19, Wu et al discloses a method of claim 1, the method further comprising a step of changing the play speed so as to support a user to view more slowly or faster than the play speed provided by the system by the user's adjustment of a play speed value attained by the indexing information, wherein all values through entire intervals of the corresponding video are increased/decreased collectively or at a constant ratio by the user's adjustment or wherein specific image complexity values are selectively increased/decreased by the user's adjustment (Column 7 Lines 64+ through Column 8 Lines 1-22).

[claim 20]

In regard to Claim 20, Wu et al discloses a method of claim 19, wherein the adjusted play speed value is stored with information on the corresponding interval so as to be used as a new image complexity value when the corresponding interval starts to be played (Column 7 Lines 44+ describes the new image complexity value).

[claim 21]

In regard to Claim 21, Wu et al discloses a method of claim 1, wherein the index information is defined by a sequence of frames to be played so as to provide a viewing speed faster or slower than the play speed provided by the system in accordance with the index information, and wherein the play speed is decreased or increased by increasing or decreasing the defined frame sequence in the respective intervals of the corresponding video with a constant ratio, or by increasing or decreasing the defined frame sequence in specific intervals selectively (Column 7 Lines 64+ through Column 8 Lines 1-22).

[claim 22]

In regard to Claim 22, Wu et al discloses a method of claim 1, the method further

comprising the steps of: setting a viewing time limit of fast-forward play of the video;

computing a required time for fast-forward play of the entire video on the basis of the

index information; and adjusting the fast-forward play speed to reach the time limit

using the computed time and viewing time limit (Column 7 Lines 33+ describes the

computed value of a fast-forward play of the entire video).

[claim 23]

In regard to Claim 23, Wu et al discloses a in variably controlling a play speed of a video

based on a content complexity of video story development as motion information

obtained by indexing the entire video, a method of constructing index information for

controlling an intelligent fast-forward viewing includes a step of constituting the content

complexity information as index information defined as a predetermined form enabling

to designate each play speed of the corresponding complexity (Column 6 Lines 14+

describes the complexity of indexing the entire video).

[claim 24]

In regard to Claim 24, Wu et al discloses a method of claim 23, wherein the index

information is defined by (a) a specific interval of the video and an image complexity

corresponding to the specific interval, (b) an interval and a play speed corresponding to

the interval, or (c) a sequence of frames to be played (Column 6 Lines 50+ describes

the selection of a frame based on play speed).

[claim 25]

In regard to Claim 25, Wu et al discloses an apparatus for controlling intelligent fast-forward viewing of a video comprising:

- a means for calculating a complexity of video content in accordance with story development of a corresponding video from a digital video stream including at least motion information (Figure 4 shows a means calculating complexity);

- a means for storing the calculated content complexity information; and a means for playing and displaying the corresponding video in different play speeds for each specific interval on the basis of the stored complexity information (Figure 5 shows the calculation and the displaying of the video through speed control).

[claim 28]

In regard to Claim 28, Wu et al discloses an apparatus of claim 25, wherein the play speed is readjusted by a user's designation at a playing stage (Column 8 Lines 1-15).

[claim 29]

In regard to Claim 29, Wu et al discloses an apparatus of claim 25, the apparatus further comprising a producing means for generating information which designates a play speed for a specific interval of the corresponding video on the basis of the computed content complexity, wherein the corresponding video is played and displayed by adjusting the play speed for each of the specific intervals on the basis of the speed designation information (Column 7 Lines 45+).

[claim 30]

In regard to Claim 30, Wu et al discloses an apparatus of claim 29, wherein the speed designation information is at least one of the specific interval of the video and image complexity in the specific interval, a speed value in the video interval and corresponding interval, or a frame sequence corresponding to the play speed (Column 7 Lines 44+).

[claim 31]

In regard to Claim 31, Wu et al discloses an apparatus further comprising: a means for generating information which designates a play speed in a specific interval of the corresponding video on the basis of the computed content complexity; and a means for calculating number of frame to be played on the basis of the generated play speed, wherein the corresponding video is played and displayed on the basis of the frame number to be played (Column 6 Lines 40+).

Claims 11, 26, 27 rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al (US 5,615,018) in view of Lane et al (US 6,377051) in further view of Hoffberg (US 6,400,996).

[claims 11, 26, & 27]   *and Lane et al*

In regard to Claims 11, 26, and 27, Wu et al discloses a method of claim 10; however, fails to discloses the following: (a) the motion information of a magnified face part is adjusted as simpler in case the complexity is adjusted using the face detection information, (b) the motion information of a part in which a size of the audio information increases is adjusted as more complicated in case the complexity is adjusted using the audio information, and (c) the motion information of a part in which a caption appears or

is changed is adjusted as more complicated in case the content complexity is adjusted

using the image text information. Hoffberg et al discloses a system wherein a system

recognizes a face, audio, and changes within the caption information as seen in Figures

30 and 31 and further described in Column 139 lines 20+ describes the process of

identifying items in the data stream for recognizing motion information. The ability to

recognize various motion information such as face, audio and caption information

provides the system the ability to analyze and process the data stream to detect a

change in the data stream. Therefore it would be obvious to one ordinary skill in the art

to use the system as disclosed by Wu et al which allows for fast forward based on

motion vectors and further disclose a system that detects motion information through

facial detection, audio detection, and caption change, as disclosed by Hoffberg.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

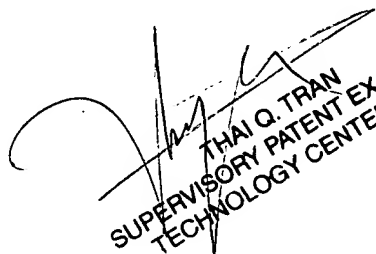than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jamie Vent whose telephone number is 571-272-7384. The examiner can normally be reached on 7:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thai Tran can be reached on 571-272-7382. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JJV

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